The Lepidopterological Society of Japan

On the genus *Eilema* from Japan (Lepidoptera, Arctiidae)

HIROSHI KOBAYASHI

23~11, 2-chome, Sugano, Ichikawa City, Chiba, JAPAN

Until INOUE and YAMAMOTO (1961), and INOUE (1961) showed correct applications of species names and synonymy, there had been so many misidentifications concerning usage of scientific names for the Japanese species of the genus *Eilema*. Excepting some superficially conspicuous species, viz. *E. degenerella* and *E. cribrata*, it is frequently very difficult or even nearly impossible to identify species-group taxa by superficial features. It is, therefore, natural that there were numerous errors comitted by senior authors in interpreting original and other descriptions, most of which did not deal with the structure of external genital organ.

In this paper the author will try to show classification of the Japanese species of *Eilema* by using the structure of the male genitalia as the most reliable clue for discrimination of each species. Following INOUE (1961) twelve species are enumerated here as indigenes of the mainland of Japan, the Ryukyu Islands being omitted since there are but a few specimens represented in the author's collection and moreover their scientific names are still unknown to him.

In preparing the manuscript of this paper the author received constant guidance from Prof. Dr. HIROSHI INOUE, who not only gave him various advice but also offered him line drawings of genitalia and permitted him free access to his rich collection. Here the author wishes to express his sincere thanks to him. The author's gratitude is also given to Mr. TOSHIRO HARUTA for his kind gift of valuable specimens.

Genus **Eilema** HÜBNER, [1819]

Eilema HÜBNER, [1819], Verz. bek. Schmett.: 165.
Ilema HAMPSON, 1900, Cat. Lep. Phal. Brit. Mus. 2: 130; MIYAKE, 1910, Zool. Mag. (Tokyo), 22: 372.
Lithosia SEITZ, 1910, Macrolep. 2: 65; DANIEL, 1954, Bonn. zool. Beitr. 5: 89.

From the appearance the Japanese species dealt with here will be divided into the following two groups:

I. Sexual dimorphism is strong in shape of wings and colour and markings: *E. depressa pavescens*, *E. laevis*.

II. Sexual dimorphism is very weak or practically not recognizable: the rest of the species, excepting *E. coreana* whose female is still unknown.

The above grouping seems to be far from natural subdivision of the genus, since it does not conform with the classification based on other features especially those of the male genitalia.

The male genitalia are fairly uniform in general structure throughout the species of the genus; uncus a strong stick-like process with hooked apex, saccus large, rather thinly sclerotized, valve with costa broad, projecting at apex, harpe a thickly sclerotized process, nearly always projecting beyond valvula, excepting *E. cribrata* which has quite distinct valve; shape of juxta, and shape, size and number of cornuti are subject to variation according to species. Female genitalia: ovipositor lobes rather broad, apophysis anterioris and posterioris short, sclerotization of sterigma variable, sometimes strong and sometimes weak, in general ill-defined broad plate, ductus bursae very broad, bursa copulatrix a large, membraneous pouch, in general decorated with two or three minute sclerites of serration.

From the shape of juxta we can subdivide the species into the following groups:

I. Juxta is a horn-like thick process: *degenerella, fuscodorsalis, japonica, minor, coreana, griseola aegrota, okanoi.*

NII-Electronic Library Service

The Lepidopterological Society of Japan

II. Juxta much weaker, a pair of stick-like sclerites sometimes fused at the tip, but never produced as in the case of the above group. This group will be divided into two subgroups by the shape of valve:

1. Valve of typical *Eilema* shape, harpe a horn-like process with pointed tip: *nankingica, tsinlingica, depressa pavescens, laevis.*

2. Valve without horn-like harpe, apical area roundish, with heavily spined belt: *cribrata.*

Venation is variable, partly individually and partly specifically. Excepting *E. depressa pavescens* and *E. laevis*, which are sexually dimorphic as mentioned above, all the species from Japan lack the areole of forewing. Both *E. depressa pavescens* and *E. laevis* are not stable as to presence or absence of the areole. Therefore, the areole is not a good characteristic for the distinction of species. Veins 8 and 9 are stalked in most of the species, but in *E. japonica* they are coincident; vein 11 is free in *E. fuscodorsalis* and *E. degenerella* with rare exceptions and it is in general anastomosing in the other species.

Key to species of Japanese *Eilema*
mainly based on male genitalia

1. Forewing orange yellow, irrorated with black scale-masses on nearly whole surface. Valve with apical area roundish without produced harpe ..... *E. cribrata*
   Forewing not as above. Valve with strongly produced harpe 2
2. Forewing pure white. Cornuti consist of two robust triangular plates ..... *E. degenerella*
   Forewing and cornuti not as above 3
3. Cornuti a thick thorn, a little longer than or nearly as long as half length of aedoeagus ..... *E. depressa pavescens*
   Cornuti not as above 4
4. Cornutus a semicircular denticulate lump of sclerite ..... *E. laevis*
   Cornuti not as above 5
5. Numerous minute spined cornuti arranged in a band of more than half length of aedoeagus ..... *E. coreana*
   Cornuti not as above 6
6. Juxta fused at apex, produced into a horn-like process 7
   Juxta not as above 11
7. Valve widened towards apex, with a process between costal projection and harpe 8
   Valve tapering towards apex, without any process between costal projection and harpe 9
8. Forewing grey, costal yellow fascia usually distinct ..... *E. griseola aegrota*
   Forewing pale ashy grey, costal pale yellow fascia inconspicuous. Aedoeagus with apical hook much stronger than in above ..... *E. okanoi*
9. Juxta with dorsal plate, one of three or four thick cornuti serrated ..... *E. minor*
   Juxta without dorsal plate, cornuti not as above 10
10. Cornuti three or four, two of which are thick, rather sagittal ..... *E. fuscodorsalis*
    Cornuti four to six, all of which are minute thorn-like sclerites ..... *E. japonica*
11. Cornuti three, apex of juxta pointed at center ..... *E. nankingica*
    Cornuti four or five, apex of juxta not pointed ..... *E. tsinlingica*

1. *Eilema depressa pavescens* (BUTLER, 1877)

ムジホソバ

Lithosia pavescens BUTLER, 1877, Ann. Mag. nat. Hist. (4) 20: 398; id., 1878, Ill. Het. Coll. Brit. Mus. 2: 7, pl. 23, f. 5; LEECH, 1899, Trans. ent. Soc. Lond. 1899: 183; MATSUMURA, 1905, Cat. Ins. Jap. 1: 179; SEITZ, 1910, Macrolep. 2: 65.

Lithosia deplana, LEECH, [1889], Proc. zool. Soc. Lond. 1888: 600; MATSUMURA, 1905, Cat. Ins. Jap. 1: 179. (nec ESPER).

Pelosia pavescens, KIRBY, 1892, Syn. Cat. Lep. Het. 1: 328.

NII-Electronic Library Service

The Lepidopterological Society of Japan

Ilema depressa, HAMPSON, 1900, Cat. Lep. Phal. Brit. Mus. 2: 145 (nec Esper).
Ilema pavescens, MIYAKE, 1910, Zool. Mag. (Tokyo), 22: 374, pl. 11, f. 9.
Ilema confusa MIYAKE, 1910, op. cit.: 410, pl. 11. f. 20 (not 19); ?KAWADA, 1950, in Icon. Ins. Jap. ed. 2: 869, f. 2470.
Eilema depressa f. *pavescens*, MATSUMURA, 1930, Ins. Mats. 5: 74.
Lithosia deplanata (!), MATSUMURA, 1931, 6000 Ill. Ins. Jap.: 964, no. 1606.
Lithosia deplana niphonica DANIEL, 1954, Bonn. zool. Beitr. 5: 92.
Eilema deplana pavescens, OKANO, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 61.
Eilema depressa pavescens, INOUE & KOBAYASHI, 1956, Tinea, 3: 137; OKAGAKI, 1958, in Icon. Het. Col. Nat. [2]: 200, text-fig. 133A, pl. 119, ff. 2520, 2521; YAMAMOTO, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 97, pl. 59, f. 22; INOUE, 1961, Check List Lep. Jap. 6: 626.

It was already pointed out by INOUE and KOBAYASHI (1956) that *Ilema confusa* MIYAKE is nothing more than the female of *pavescens* and that *niphonica* DANIEL is also a junior synonym of the same subspecies.

Very common throughout Japan and no definite geographic variation is seen, though specimens from northern or mountain regions are paler than those from warmer regions.

Distribution: Hokkaido, Honshu, Izu Islands (Miyake I., Mikura I., Hachijo I.), Shikoku, Kyushu.

2. *Eilema laevis* (BUTLER, 1877)

ツマキホソバ

Lithosia laevis BUTLER, 1877, Ann. Mag. nat. Hist. (4) 20: 398; id., 1878, Ill. Het. Coll. Brit. Mus. 2: 7, pl. 32, f. 12.
Katha aprica BUTLER, 1885, Cist. Ent. 3: 115.
Lithosia nigrifrons (part.), HAMPSON, 1894, Fauna Brit. Ind. Moths, 2: 84. (nec MOORE).
?Lithosia deplana (part.), LEECH, [1889], Proc. zool. Soc. Lond. 1888: 600.
?Lithosia aprica, LEECH, [1889], op. cit.: 599; id., 1899, Trans. ent. Soc. Lond. 1899: 184; MATSUMURA, 1905, Cat. Ins. Jap. 1: 180.
Pelosia laevis, KIRBY, 1892, Syn. Cat. Lep. Het. 1: 329.
Pelosia aprica, KIRBY, 1892, loc. cit.
?Lithosia pavescens (part.), LEECH, 1899, op. cit.: 183; MATSUMURA, 1905, op. cit.: 179.
Ilema conformis (part.), HAMPSON, 1900, Cat. Lep. Phal. Brit. Mus. 2: 146; KAWADA, 1950, in Icon. Ins. Jap. ed. 2: 869, f. 2469. (nec WALKER).
Ilema calamaria ab. *aprica*, HAMPSON, 1900, op. cit.: 176; MIYAKE, 1910, Zool. Mag. (Tokyo), 22: 408.
Ilema sororcula, MIYAKE, op. cit.: 407, pl. 11, f. 14♀ (not 28♂); KAWADA, 1950, op. cit.: 870, f. 2473 (nec HUFNAGEL).
Eilema conformis ab. *laevis*, STRAND, 1922, Lep. Cat. 26: 547.
Eilema affineola ab. *aprica*, STRAND, 1922, op. cit.: 533.
Lithosia hakiensis MATSUMURA, 1930, Ins. Mats. 5: 37, 78, pl. 1, f. 11; id., 1931, 6000 Ill. Ins. Jap.: 964. no. 1610.
Eilema affineola f. *aprica*, MATSUMURA, 1930, Ins. Mats. 5: 74.
Eilema conformis f. *laeois (!)*, MATSUMURA, 1930, op. cit.: 74.
Lithosia pavescens, DANIEL, 1954, Bonn. zool. Beitr. 5: 96, Abb. 52 (nec BUTLER).
Eilema hakiensis, OKANO, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 64.
Eilema deplana pavescens (part.), INOUE, 1956, Boll. Lab. Zool Gen. e Agr. 33: 672; INOUE & KOBAYASHI, 1956, Tinea, 3: 137.
Eilema conformis, OKANO, [1955], op. cit.: 61; INOUE & KOBAYASHI, 1956, op. cit.: 138, pl. 17. ff. 11, 12; OKAGAKI, 1958, in Icon. Het. Jap. Col. Nat. [2]: 200, pl. 119, ff. 2522, 2523, text-fig. 133B. (nec WALKER).
Eilema laevis, Inoue, 1958, Garui Tsushin, 13: 114; YAMAMOTO, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 97, pl. 59, f. 23: INOUE & YAMAMOTO, 1961, Kontyû, 29: 72; INOUE, 1961, Check List Lep. Jap. 6: 626.

Pale straw yellow forewing of male sometimes very similar to the same sex of the preceding species, but in general larger, terminal area of the both wings much more bright yellow. The golden yellow forewing of female led many senior authors (MIYAKE, 1910, etc.) to misidentify this species as

NII-Electronic Library Service

The Lepidopterological Society of Japan

"sororcula". In spite of its superficial similarity in male, it is quite distinct from the preceding species in the structure of the genitalia of both sexes. Female with bursa copulatrix more elongate and membrane much harder than in the rest of the species.

This species inhabits warmer part of Japan, the habitats being more restricted than the preceding species.

Distribution: Honshu, Shikoku, Kyushu, Izu Islands, Tsushima, Amami-ôshima.

3. *Eilema griseola aegrota* (Butler, 1877)

キ シ タ ホ ソ バ

Lithosia aegrota Butler, 1877, Ann. Mag. nat. Hist. (4) 20: 397; Kirby, 1892, Syn. Cat. Lep. Het. 1: 323.
Lithosia adaucta Butler, 1877, op. cit.: 398; id., 1878. Ill. Het. Coll. Brit. Mus. 2: 6, pl. 23, f. 6; Kirby, 1892, Syn. Cat. Lep. Het., 1: 323.
Collita aegrota, Butler, 1879, Ill. Het. Coll. Brit. Mus. 3: 8, pl. 42, f. 13.
Ilema griseola (part.), Hampson, 1900, Cat. Lep. Phal. Brit. Mus. 2: 168; Miyake, 1910, Zool. Mag. (Tokyo), 22: 375, pl. 11, f. 12.
Lithosia griseola var. *aegrota*, Staudinger, 1901, Cat. Lep. Pal. ed. 3: 377.
Lithosia griseola aegrota, Seitz, 1910, Macrolep. 2: 65, pl. 12h; Daniel, 1954, Bonn. zool. Beitr. 5: 108, Abb. 63.
Eilema griseola var. *aegrota*, Strand, 1922, Lep. Cat. 26: 560.
Lithosia griseola (part.), Matsumura, 1931, 6000 Ill. Ins. Jap.: 964, no. 1609.
Eilema griseola f. *serva*, Matsumura, 1930, Ins. Mats. 5: 75 (nec Walker).
Eilema griseola f. *aegrota*, Matsumura, 1930, loc. cit.
Eilema griseola f. *vetusta*, Matsumura, 1930, loc. cit. (nec Walker).
Ilema griseola aegrota, Kawada, 1950, in Icon. Ins. Jap. ed. 2: 869, f. 2471.
Eilema griseola aegrota, Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 62; id. 1958, Trans. lep. Soc. Jap. 9: 41, text-fig. 2; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 200, pl. 119, f. 2524, text-fig. 133C; Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 98, pl. 59, f. 28; Inoue, 1961, Check List Lep. Jap. 6: 629.

Very common throughout Japan; specimens from high altitude, 1000 m or more, are larger and paler than those found in temperate area, from where are often found specimens with hindwing entirely yellow. Specimens from the island of Yakushima have hindwing with pinkish hue, probably approaching subsp. *serva* Walker. On the difference of this species from its close relative, *E. okanoi*, see below.

Distribution: Hokkaido, Honshu, Shikoku, Kyushu, Yakushima.

4. *Eilema okanoi* Inoue, 1961

ミヤマキベリホソバ

Eilema griseola montana Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 62 (preoccupied, nec Aurivillius).
Eilema montana, Okano, 1958, Trans. Lep. Soc. Jap. 9: 40, text-fig. 1; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 200, pl. 119, f. 2525, text-fig. 133D; Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 98, pl. 59, f. 29.
Eilema okanoi Inoue, 1961, Check List Lep. 6: 627 (nom. nov. for *E. griseola montana* Okano).

Closely related to the preceding species, frequently being confusingly alike, but much paler in colour and costal pale yellowish fascia more inconspicuous. Male genitalia: apical hook of aedoeagus much larger, length of aedoeagus shorter, transtilla wider, apex of harpe more sharply defined. Female genitalia: sclerotization around genital opening broader.

The habitats of this species is confined to central mountains and cold northern district where it is sympatric with the preceding species.

Distribution: Hokkaido, Honshu.

NII-Electronic Library Service

The Lepidopterological Society of Japan

5. *Eilema coreana* (Leech, [1889])

ヒメキマエホソバ

Lithosia coreana Leech, [1889], Proc. zool. Soc. Lond. 1888: 6000, pl. 30, f. 13; Kirby, 1892, Syn. Cat. Lep. Het. 1: 326; Leech, 1899, Trans. ent. Soc. Lond. 1899: 182; Seitz, 1910, Macrolep. 2: 66, pl. 12h.

Ilema coreana, Hampson, 1900, Cat. Lep. Phal. Brit. Mus. 2: 168. (probably a mixture of other species).

Lithosia lurideola var. *coreana*, Staudinger, 1901, Cat. Lep. Pal. ed. 3: 377; Matsumura, 1905, Cat. Ins. Jap. 1: 179.

Eilema coreana, Strand, 1922, Lep. Cat. 26; 547; Matsumura, 1930, Ins. Mats. 5: 74; Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7; 62; Inoue & Yamamoto, 1961, Kontyû, 29: 74; Inoue, 1961, Check List Lep. Jap. 6: 627.

Eilema gina Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 62, text-figs. 1-3; id., 1958, Trans. Lep. Soc. Jap. 9: 40, f. 4; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 201.

This species is very small, the length of forewing about 8 mm, and sometimes liable to be confused with small aestival specimens of *japonica*, but forewing lighter grey and the structure of male genitalia quite distinct from it in the shape of valve, which recalls *griseola* and *okanoi*, and in numerous minute spines on vesica.

The habitats confined to Iwate and Akita Prefectures, appearing season being late July to beginning of September.

Distribution: Honshu (north), Korea.

6. *Eilema fuscodorsalis* (Matsumura, 1930)

ヤネホソバ

Lithosia fuscodorsalis Matsumura, 1930, Ins. Mats. 5: 37, 78, pl. 1, f. 18; id., 1931, 6000 Ill. Ins. Jap.: 964, no. 1608.

Lithosia yokohamae Daniel, 1954, Bonn. zool. Beitr. 5; 118, Abb. 76.

Eilema yokohamae, Kobayashi, 1958, Garui Tsushin, 13.: 111, text-figs. 1, 2; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 201, pl. 119, f. 2528, text-fig. 133G; Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 98, pl. 59, f. 26.

Eilema fuscodorsalis, Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 64; Inoue & Yamamoto, 1961, Kontyû, 29: 77; Inoue, 1961, Check List Lep. Jap. 6: 628.

The correct identification of this species and synonymy were shown by Inoue & Yamamoto (1961).

The vernal brood is nearly as large as *depressa ravescens*, while the aestival brood is much smaller and tinged with golden yellow, recalling yellow form of *nankingica*. The genitalia of both sexes are characteristic as illustrated.

Very common throughout south-western half of Japan, both on plains and on low mountains.

Distribution: Honshu, Shikoku, Kyushu, Tsushima, Yakushima, China.

7. *Eilema tsinlingica* (Daniel, 1954)

キムジホソバ

Lithosia tsinlingica Daniel, 1954, Bonn. zool. Beitr. 5: 115, Abb. 71.

Eilema affineola, Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 63 (nec Bremer).

Eilema iwatensis Okano, 1957, Trans. Lep. Soc. Jap. 8: 16, text-figs. 1-3; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 201, text-fig. 133A; Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 97, pl. 59, f. 25.

Eilema tsinlingica, Inoue & Yamamoto. 1961, Kontyû, 29: 76; Inoue, 1961, Check List Lep. Jap. 6: 628.

Pale yellow, a little more than or nearly as large as the summer specimens of *fuscodorsalis*, length of forewing 10-11 mm. Male genitalia are characterized by weak juxta, with roundish center, four or five moderate-sized cornuti.

At northern part of Honshu this species is found at low altitude, but at southern part it is collected

NII-Electronic Library Service

The Lepidopterological Society of Japan

only on highlands, in July and August.

Distribution: Honshu, Kyushu, Korea, China.

8a. *Eilema japonica japonica* (Leech, [1889])

キ マ エ ホ ソ バ

Lithosia japonica Leech, [1889,] Proc. zool. Soc. Lond. 1888: 600, pl. 30, f. 2: id., 1899, Trans. ent. Soc. Lond. 1899: 182; Kirby, 1892, Syn. Cat. Lep. Het. 1: 326; Seitz, 1910, Macrolep. 2: 66, pl. 12h; ?Matsumura, 1931, 6000 Ill. Ins. Jap.: 965, no. 1612.

Ilema japonica, Hampson, 1900, Cat. Lep. Phal. Brit. Mus. 2: 168; Miyake, 1910, Zool. Mag. (Tokyo), 22: 374. pl. 11, f. 10.

Eilema japonica, Strand, 1922, Lep. Cat. 26: 562; Matsumura, 1930, Ins. Mats. 5: 75; Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 62.

Eilema ainonis, Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 201, pl. 119, f. 2527, text-fig. 133J (nec Matsumura).

Eilema japonica japonica, Okano, 1958, Trans. Lep. Soc. Jap. 9: 40, text-fig. 5; Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 98, pl. 59, f. 27, text-figs. A-C; Inoue, 1961, Check List Lep. Jap. 5: 628.

Spring brood of this species is often very similar to *minor* in colour and markings, but coincidence of veins 8 and 9 of forewing is the unique characteristic of this species. In male genitalia juxta is much longer than *minor*, number and size of cornuti also quite distinct.

Very common in plains and on low hills and mountains, summer specimens in general smaller than spring ones.

Distribution: Honshu, Shikoku, Kyushu, China, Tibet.

8b. *Eilema japonica ainonis* (Matsumura, 1927)

Lithosia ainonis Matsumura, 1927, Ins. Mats. 1: 114.

Eilema ainonis, Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 64; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 201.

Eilema japonica ainonis, Okano, 1958, Trans. Lep. Soc. Jap. 9: 41; Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 98; Inoue, 1961, Check List Lep. 6: 628.

As Okano (1958) states *Lithosia ainonis* is the northern or Hokkaido race of *japonica* characterized by wider costal fascia, under surface of forewing with marginal yellow area broader.

Distribution: Hokkaido.

9. *Eilema nankingica* (Daniel, 1954)

ヒメツマキホソバ

?Lithosia affineola, Leech, [1889], Proc. zool. Soc. Lond. 1888: 600; id., 1899, Trans. ent. Soc. Lond. 1899: 182; Staudinger, 1901, Cat. Lep. Phal. ed. 3: 379; Matsumura, 1905, Cat. Ins. Jap. 1: 180; id., 1930, Ins. Mats. 5: 73 (nec Bremer).

Lithosia nankingica Daniel, 1954, Bonn. zool. Beitr. 5: 117, Abb. 73.

Eilema coreana, Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 62; id., 1958, Trans. Lep. Soc. Jap. 8: 15, text-figs. a, j (nec Leech).

Eilema japonica, Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 201, pl. 119, f. 2526, text-fig. 133E (nec Leech).

Eilema iwatensis, Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 97 (nec Okano).

Eilema nankingica, Yamamoto, 1959, op. cit.: 98, text-figs. D, E, F; Inoue & Yamamoto, 1961, Kontyû, 29: 75; Inoue, 1961, Check List Lep. Jap. 6: 628.

Forewing brownish grey, with yellow costal fascia, but in Hokkaido we often meet with specimens with yellowish forewing. The detailed variation and misidentification of this variable species is described by Inoue & Yamamoto (1961). Juxta and cornuti are quite characteristic.

NII-Electronic Library Service

The Lepidopterological Society of Japan

Common from north to south, appearing in July and August.

Distribution: Hokkaido, Honshu, Shikoku, Kyushu, Korea, China.

10. *Eilema minor* Okano, [1955]

ニセキマエホソバ

Lithosia coreana, Daniel, 1954, Bonn. zool. Beitr. 5: 117, Abb. 74; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 201, text-fig. 133F (nec Leech).

Eilema lurideola minor Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 61.

Eilema minor, Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 97, pl. 59, f. 24, text-figs. A-C; Inoue, 1961, Check List Lep. Jap. 6: 629.

Similar to dark form of *nankingica* and large specimens of *japonica*, but dorsal plate of juxta and three or four peculiar cornuti distinguish it from its allies. Forewing with yellow costal fascia almost always clear-cut, continuing to apex without decreasing its width.

Rather rare and local, in northern part it appears in June, but in southern part in July and August.

Distribution: Honshu, Kyushu, Amur, China.

11. *Eilema degenerella* (Walker, 1863)

シロホソバ

Rupela degenerella Walker, 1863, List Lep. Ins. Brit. Mus. 28: 524.

Lithosia alba Moore, 1877, Ann. Mag. nat. Hist. (4)20: 87; Leech, 1899, Trans. ent. Soc. Lond. 1899: 185; Matsumura, 1905, Cat. Ins. Jap. 1: 180.

Systropha nivosa Butler, 1879, Ann. Mag. nat. Hist. (5) 4: 353; Kirby, 1892, Syn. Cat. Lep. Het. 1: 331.

Tarika alba, Kirby, 1892, op. cit.: 322.

Ilema degenerella, Hampson, 1900, Cat. Lep. Phal. Brit. Mus. 2: 178, pl. 23, f. 20; Miyake, 1910, Zool. Mag. (Tokyo), 22: 409, pl. 11, f. 18 (not 25); Kawada, 1950, in Icon. Ins. Jap. ed. 2: 870, f. 2474.

Lithosia degeneralla, Seitz, 1910, Macrolep. 2: 67, pl. 121; Matsumura, 1931, 6000 Ill. Ins. Jap.: 963, no. 1605; Daniel, 1954, Bonn. zool. Beitr. 5: 122, Abb. 80.

Eilema degenerella, Strand, 1922, Lep. Cat. 26: 549; Matsumura, 1930, Ins. Mats. 5: 74; Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 63; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 203, pl. 120, f. 2530; Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 98, pl. 59, f. 31; Inoue, 1961, Check List Lep. 6: 629.

Distinguished from all the other species by pure white forewing. Very long juxta and two strong cornuti of the male genitalia and sclerotization of the female genitalia are unique in this species.

Common at southern half of Japan, but not found at cold zone and on mountains.

Distribution: Honshu, Kyushu, Korea, China.

12. *Eilema cribrata* (Staudinger, 1887)

ヒメキホソバ

Lithosia cribrata Staudinger, 1887, in Romanoff, Mém. Lép. 3: 189, t. 10, f. 11; Leech, 1899, Trans. ent. Soc. Lond. 1899: 185; Staudinger, 1901, Cat. Lep. Pal. ed. 3: 378; Matsumura, 1905, Cat. Ins. Jap. 1: 180; Seitz, 1910, Macrolep. 2: 69, pl. 13b; Daniel, 1954, Bonn. zool. Beitr. 5: 123.

Dolgoma cribrata, Kirby, 1892, Syn. Cat. Lep. Het. 1: 332.

Ilema cribrata, Hampson, 1900, Cat. Lep. Phal. Brit. Mus. 2: 175; Miyake, 1910, Zool. Mag. (Tokyo), 22: 407; Kawada, 1950, in Icon. Ins. Jap. ed. 2: 870, f. 2472.

Eilema cribrata, Matsumura, 1930, Ins. Mats. 5; 74; Okano, [1955], Annual Rep. Gakugei Fac. Iwate Univ. 7: 63; Okagaki, 1958, in Icon. Het. Jap. Col. Nat. [2]: 201, pl. 119, f. 2529, text-fig. 1331; Yamamoto, 1959, in Icon. Ins. Jap. Col. Nat. Ed. 1: 98, pl. 59, f. 30; Inoue, 1961, Check List Lep. Jap. 6: 629.

NII-Electronic Library Service

The Lepidopterological Society of Japan

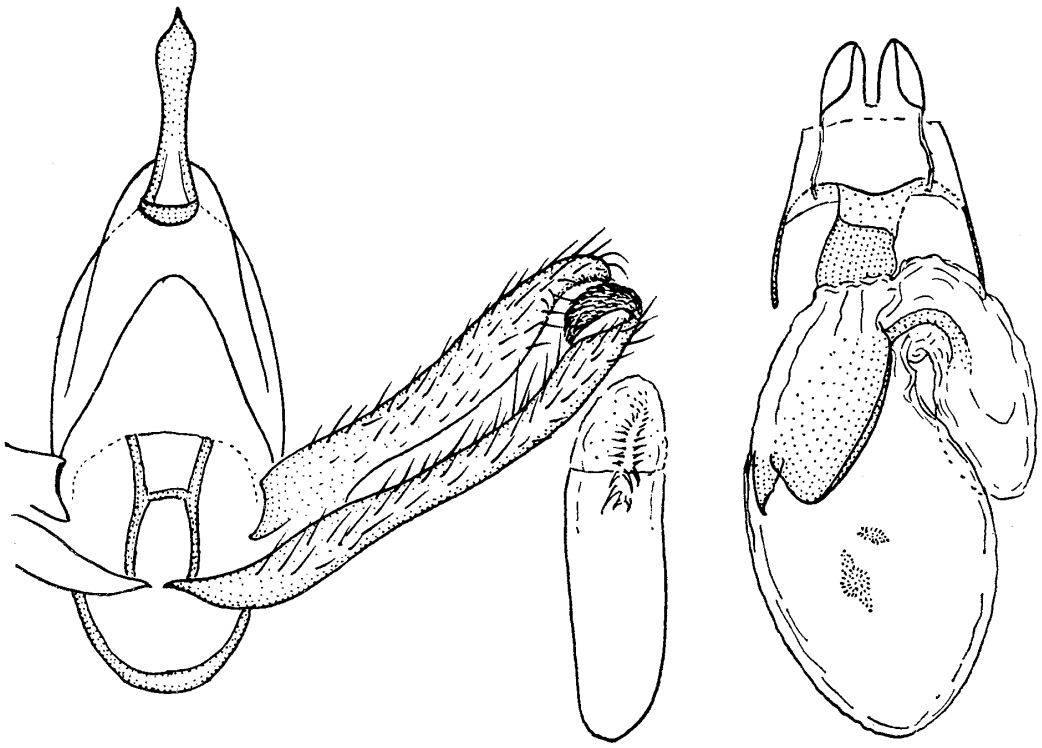


Fig. 1. *Eilema cribrata* (STAUDINGER) Male and female genitalia.

Characterized by yellow forewing spotted with black atoms and peculiar shape of valve and bursa. It is common from May to September, from northern Hokkaido to as far south as Island of Yakushima.

Distribution: Hokkaido, Honshu, Shikoku, Kyushu, Izu Islands, Yakushima, Korea, Amur, China.

Ilema okiensis MIYAKE, 1907, Ann. zool. Jap. 6: 207; id., 1910, Zool. Mag. (Tokyo), 22: 410, pl. 11, f. 19♀(not 26♂), was briefly described founded on a female specimen collected on the island of Oki. Since it is nearly impossible to identify it from the original and subsequent descriptions and the poor illustration, and moreover the type specimen has not been rediscovered, even its systematic position is doubtful.

The following species of the genus were previously recorded from Japan owing to misidentifications and therefore they should be omitted from the fauna of Japan: *E. calamaria* MOORE, *E. complana* LINNAEUS, *E. affineola* BREMER, *E. debilis* STAUDINGER, *E. nigripoda* BREMER & GREY, and *E. sororcula* HUFNAGEL.

REFERENCE

BUTLER, A. G., 1877. Descriptions of new species of Lepidoptera Heterocera from Japan. Ann. Mag. nat. Hist. (4)20: 398.

——, 1878. Illustrations of Typical Specimens of Lepidoptera Heterocera in the Collection of the British Museum, Vol. 2: Japanese Moths.

——, 1879. Ditto, Vol. 3: Japanese and Chinese Moths.

——, 1885. Descriptions of moths new to Japan collected by Messrs. LEWIS and PRYER. Cist. Ent. Vol. 3: 115.

DANIEL, F., 1954. Beiträge zur Kenntnis der Arctiidae Ostasiens unter besonderer Berücksichtigung der Ausbeuten von Dr. h. c. H. HÖNE aus diesem Gebiet. III. Teil: Lithosiinae. Bonn. zool. Beitr. Bd. 5, Heft 1-2: 89-138.

HAMPSON, G. F., 1894. The Fauna of British India, including Ceylon and Burma. Moths, Vol. II.

——, 1900. Catalogue of the Lepidoptera Phalaenae in the British Museum. Vol. II: Arctiadae (Nolinae, Lithosianae).

NII-Electronic Library Service

The Lepidopterological Society of Japan

INOUE, H., 1956. Synonymic notes on some moths from Japan and adjacent countries. Boll. Lab. zool. Gen. e Agr. 33: 672.
——, 1961. Check List of Lepidoptera of Japan. Part 6.
INOUE, H. & H. KOBAYASHI, 1956. A systematic study of the Japanese Arctiidae (1). Tinea, Vol. 3, nos. 1/2: 136-138.
INOUE, H, & H. YAMAMOTO, 1961. A synonymic note on several Japanese species of the genus *Eilema*. Kontyû, Vol. 29: 72-78.
KAWADA, A., 1950. In Iconographia Insectorum Japonicorum, Editio Secunda Reformata (in Japanese).
KIRBY, W. F., 1892. A synonymic Catalogue of Lepidoptera Heterocera. Vol. I: Sphinges and Bombyces.
KOBAYASHI, H., 1958. Notes on *Eilema yokohamae* DANIEL. Garui Tsushin, No. 13: 111-113 (in Japanese).
LEECH, J. H., [1889]. On the Lepidoptera of Japan and Corea, Part II. Proc. zool. Soc. Lond., 1888: 599-600.
——, 1899. Lepidoptera Heterocera from Northern China, Japan, and Corea. Trans. ent. Soc. Lond., 1899: 180-185.
MATSUMURA, S., 1905. Catalogue of Insects of Japan, Vol. 1.
——, 1927. A list of moths collected on Mt. Daisetsu, with descriptions of new species. Ins. Mats., Vol. I, No. 3: 114.
——, 1930. New species and forms of Arctiidae from Japan. Ins. Mats., Vol. V, No. 1 & 2: 31-40.
——, 1930. A catalogue of the Arctiidae of the Japan-Empire. Ins. Mats., Vol. V, No. 1 & 2: 58-94.
——, 1931. 6000 Illustrated Insects of Japanese Empire (in Japanese).
MIYAKE, T., 1910. "The Lithosiinae of Japan." Zool. Mag., (Tokyo), Vol. 22, No. 260: 331-343; No. 261: 371-376; No. 262: 407-411 (in Japanese).
OKAGAKI, H., 1958. In Icones Heterocerorum Japonicorum in Coloribus Naturalibus, [Vol. 2] (in Japanese).
OKANO, M., [1955]. Le genre *Eilema* HÜBNER de Japon. Annual Rep. Gakugei Fac. Iwate Univ., Vol. 7 (1954), Pt. 2: 61-64.
——, 1957. Une nouvelle espèce d' *Eilema* HÜBNER de Japon. Trans. Lep. Soc. Jap., Vol. 8, Pt. 2: 16.
——, 1958. A systematic study of the Japanese Lithosiinae. Trans. Lep. Soc. Jap., Vol. 9, Pt. 3: 40-42.
SEITZ, A., 1910. The Macrolepidoptera of the World. Vol. 2, The Palaearctic Bombyces & Sphinges.
STAUDINGER, O., 1901. In STAUDINGER und REBEL: Catalog Lepidopteren des Palaearctischen Faunengebietes. I. Theil.
STRAND, E., 1922. In WAGNER, Lepidopterorum Catalogues, Pars 26, Arctiidae: Subfam. Lithosiinae.
YAMAMOTO, H., 1959. In Iconographia Insectorum Japonicorum Colore naturali edita. Vol. 1, Lepidoptera (in Japanese).

Plate II. Japanese *Eilema*.

(Figs. 3-8 slightly reduced, but others natural size)

Fig. 1. *E. depressa pavescens* (BUTLER) ムジホソバ, ♂. Shibecha, Kushiro, Hokkaido, 31. viii. 1962 (K. IJIMA leg.).
Fig. 2. Ditto, ♀. Takao-san, Tokyo, 28. vi. 1959 (H. INOUE leg.).
Fig. 3. *E. laevis* (BUTLER) ツマキホソバ, ♂. Ôdaru Spa, Shizuoka Pref., 23-24. v. 1955 (T. HARUTA).
Fig. 4. Ditto, ♀. Locality as above, 29-31. vii. 1957 (H. INOUE leg.).
Fig. 5. *E. griseola aegrota* (BUTLER) キシタホソバ, ♂. Kokurobe (700 m), Toyama Pref., 27. viii. 1965 (H. INOUE leg.).
Fig. 6. Ditto, ♀. Data as above.
Fig. 7. *E. okanoi* INOUE ミヤマキベリホソバ, ♂. Data as above.
Fig. 8. Ditto, ♀. Mt. Yatsu (1500 m), Nagano Pref., 1-5. viii. 1959 (S. NOMURA leg.).
Fig. 9. *E. coreana* (LEECH) ヒメキマエホソバ, ♂. [Paratype of *E. gina* OKANO] Akebono-mura, Kazuno-gun, Akita Pref., 8. viii. 1957 (Y. ASAGIRI leg.)
Fig. 10. *E. fuscodorsalis* (MATSUMURA) ヤネホソバ, ♂. Kiyoshima, Taitô-ku, Tokyo, 10. vii. 1957 (T. MAENAMI leg.).

NII-Electronic Library Service

The Lepidopterological Society of Japan

Fig. 11. Ditto, ♀. Locality and collector as above, 10. viii. 1957.
Fig. 12. Ditto, ♂. Ichikawa, Chiba Pref., 23. iv. 1956 (H. KOBAYASHI leg.).
Fig. 13. *E. tsinlingica* (DANIEL) キムジホソバ, ♂. [Paratype of *E. iwatensis* OKANO]. Ueda, Morioka, Iwate Pref., 13. viii. 1950 (M. OKANO leg.).
Fig. 14. Ditto, ♀. [Paratype of *E. iwatensis* OKANO]. Locality and collector as above, 2. viii. 1953.
Fig. 15. *E. japonica ainonis* (MATSUMURA) キマエホソバ, ♂. Furano, Hokkaido, 1. viii. 1957 (M. OKANO leg.).
Fig. 16. *E. japonica japonica* (LEECH) キマエホソバ, ♂. Shigura Hyôgo, Pref., 25. viii. 1956 (Y. YAMAMOTO leg.).
Fig. 17. Ditto, ♀. Takao-san, Tokyo, 28. vi. 1959 (H. INOUE leg.).
Fig. 18. Ditto, ♂. Ôdaru Spa, Shizuoka Pref., 3. vii. 1960 (H. INOUE leg.).
Fig. 19. *E. nankingica* (DANIEL) ヒメツマキホソバ, ♂. Nii-yama, Shiwa, Iwate Pref., 23-24. viii. 1954 (M. OKANO leg.).
Fig. 20. Ditto, ♀. Data as above.
Fig. 21. Ditto, ♂. [Yellow form]. Shibecha, Kushiro, Hokkaido, 30. vii. 1959 (K. IJIMA leg.).
Fig. 22. Ditto, ♀. Naka-Karuizawa, Nagano Pref., 4-6. viii. 1962 (T. MAENAMI leg.).
Fig. 23. *E. minor* OKANO ニセキマエホソバ, ♂. Ueda, Morioka, Iwate Pref., 24. vi. 1952 (M. OKANO leg.).
Fig. 24. Ditto, ♀. Karuizawa, Nagano Pref., 8. viii. 1950 (H. KOBAYASHI leg.).
Fig. 25. *E. degenerella* (WALKER) シロホソバ, ♂. Ichikawa, Chiba Pref., 10. vi. 1956 (H. KOBAYASHI leg.).
Fig. 26. *E. cribrata* (STAUDINGER) ヒメキホソバ, ♂. Kokurobe (700 m), Toyama Pref., 27. viii. 1965 (H. INOUE leg.).

Plate III: Male genitalia.

Fig. 1. *Eilema degenerella* (WALKER).
Fig. 2. *E. fuscodorsalis* (MATSUMURA).
Fig. 3. *E. japonica japonica* (LEECH).
Fig. 4. *E. minor* OKANO.
Fig. 5. *E. coreana* (LEECH).
A: Korean specimen in coll. British Museum (N. H.).
B: Specimen from Akita Pref. in coll Dr. M. OKANO.

Plate IV: Male genitalia.

Fig. 1. *Eilema griseola aegrota* (BUTLER).
Fig. 2. *E. okanoi* INOUE.
Fig. 3. *E. nankingica* (DANIEL).
Fig. 4. *E. tsinlingica* (DANIEL).
Fig. 5. *E. depressa pavescens* (BUTLER).
Fig. 6. *E. laevis* (BUTLER).

Plate V: Female genitalia.

Fig. 1. *Eilema degenerella* (WALKER).
Fig. 2. *E. fuscodorsalis* (MATSUMURA).
Fig. 3. *E. japonica japonica* (LEECH).
Fig. 4. *E. griseola aegrota* (BUTLER).
Fig. 5. *E. okanoi* INOUE.
Fig. 6. *E. nankingica* (DANIEL).
Fig. 7. *E. depressa pavescens* (BUTLER).
Fig. 8. *E. laevis* (BUTLER).

摘　　要

Eilema 属はヒトリガ科 Arctiidae, コケガ亜科 Lithosiinae に属し, 非常に種類の多いグループで, 北米を除く各大陸に分布している.

NII-Electronic Library Service

The Lepidopterological Society of Japan

日本に分布している *Eilema* 属の各種は互いによく似ているばかりでなく，♂♀でまったく違った翅形・色彩・斑紋を示す種もあって，これまでその同定，学名の適用に多くの誤りがあった．

Inoue & Yamamoto (1961, Kontyū, Vol. 29 : 72～78) は特に学名の使用法が混乱している5種の整理を発表し，また，井上 (1961, 日本産蝶蛾総目録, 6 : 626～629) は日本産（琉球列島を除く）として12種を挙げている．

本文では，上に述べた文献を中心として学名および和名を採用し，主に♂交尾器の形態による既知 12 種の分類を試みた．

♂交尾器は，最も信頼できる種の区別点を示すが cornutus の形や数には個体変異があり，ことに小さな骨片から成る場合は，その数が必ずしも一定していないので，この点は注意しなければならない．

日本産のみについて比較すれば，この属の♂交尾器は，全体としてよくまとまっているが，*E. cribrata* Staudinger ヒメキホソバだけが，かなり異質的な valve を持っている．Juxta の形態から，この属は2つのグループに大別できる．

I. Juxta は骨化の強い角状の突起をなす：*E. degenerella* Walker シロホソバ，*E. fuscodorsalis* Matsumura ヤネホソバ，*E. japonica* Leech キマエホソバ，*E. minor* Okano ニセキマエホソバ，*E. coreana* Leech ヒメキマエホソバ，*E. griseola aegrota* Butler キシタホソバ，*E. okanoi* Inoue ミヤマキベリホソバ．

II. Juxta の骨化はいっそう弱く，両側にある1対の棒状骨片は，種によって中央で，融合するが，決して角状の突起とならない．このグループは valve の形から更に2つに分けられる．

1. Valve は *Eilema* 独特の形で，harpe が先のとがった角状の突起：*E. nankingica* Daniel ヒメツマキホソバ，*E. tsinlingica* Daniel キムジホソバ，*E. depressa pavescens* Butler ムジホソバ，*E. laevis* Butler ツマキホソバ．

2. Valve には角状の harpe がなく，先端部は丸味をもち，帯状に小針状物が並んでいる：*E. cribrata* Staudinger ヒメキホソバ．

翅脈にはかなり個体変異があるが，前翅に小室をもつのは *E. depressa* と *laevis* だけで，両種ともその特徴は安定していない．脈8と9は有柄だが，*E. japonica* だけは合して1本の脈となっている．脈11が12と完全に離れているのは *E. fuscodorsalis* だけで，他の種では12と接するが翅頂まで，または短距離の間結合する．

♂交尾器の形態を主とする検索表

1 前翅は黄色の地に小黒点を一面に散布する．Valve の先端は丸味をもち，角状の harpe を欠く… *E. cribrata*
前翅は上のようでない，harpe は角状の突起として出張る …… 2

2 前翅は純白 cornuti は2個のほぼ三角形の板状物…… *E. degenerella*
前翅は純白でない，cornuti は上のようでない …… 3

3 Cornutus は1本の長い刺状物で，aedoeagus の半分またはそれ以上の長さ …… *E. depressa*
Cornuti は上のようでない …… 4

4 Cornutus は半円形の骨片で表面が刺状…… *E. laevis*
Cornuti は上のようでない …… 5

5 Cornuti は無数の小針状物からなり，帯状にならんで，その長さは aedoeagus の半分以上 …… *E. coreana*
Cornuti は上のようでない …… 6

6 Juxta は中央で骨片が合一し，角状の突起となる …… 7
Juxta は上のようでない…… 11

7 Valve は先端部で広がり costa と harpe の間に突起がある …… 8
Valve は先細で上のような突起がない …… 9

8 前翅は灰色，前縁の黄色帯は常に明瞭…… *E. griseola*
前翅はうすい灰黄色，前縁の淡黄色帯は不明瞭．aedoeagus 先端の鉤状突起は前種より強大 ……*E. okanoi*

9 Juxta の背面に骨板がある，3乃至4個の cornuti のうちの1つはこまかく鋸歯状 …… *E. minor*
Juxta の背面に骨板がない，cornuti は上のようでない…… 10

NII-Electronic Library Service

The Lepidopterological Society of Japan

10 Cornuti は3～4個，そのうちの2個は大きくて，矢じり状に近い…… *E. fuscodorsalis*
Cornuti は4～6個，全部微小な刺状物…… *E. japonica*
11 Cornuti は3個，juxta の先端は中央でとがる…… *E. nankingica*
Cornuti は4～5個，juxta の先端はとがらない …… *E. tsinlingica*

現在広く利用されている図鑑類には大部分の種が図説されており，本文に，シノニムや分布も詳しく記載しておいたので，ここに繰りかえさない．

岡垣,1958 は保育社版の原色日本蛾類図鑑（下）で9種の蛾を図説し，10種の♂交尾器を示している．また，山本,1959 は北隆館の原色昆虫大図鑑，第1巻で，同じく 10 種を図説し，両者とも近似の別種も引用している．

いま，これらの図鑑に採用された学名，和名と，本文で使ったものを表示すると別表のようになる．

なお，下記に列記した種類は，これまで日本産として記載があったが，いずれも同定の誤りで，日本に分布していない．

Eilema calamaria Moore, *E. complana* Linné, *E. affineola* Bremer, *E. debilis* Staudinger, *E. nigripoda* Bremer & Grey, *E. sororcula* Hufnagel.

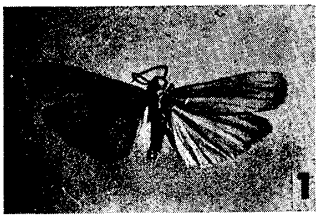
また，*Ilema okiensis* Miyake (1907) については，タイプ標本がなく，かつ記載が乏しいので，除外した．

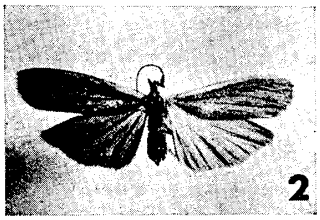
正しい名称	岡垣 1957	山本 1959
E. depressa pavescens Butler ムジホソバ	—— ——	—— ——
E. laevis Butler ツマキホソバ	*E. conformis* Walker	—— ——
E. griseola aegrota Butler キシタホソバ	—— キベリホソバ	—— ——
E. okanoi Inoue ミヤマキベリホソバ	*E. montana* Okano	*E. montana* Okano
E. coreana Leech ヒメキマエホソバ	*E. gina* Okano	*E. gina* Okano
E. fuscodorsalis Matsumura ヤネホソバ	*E. yokohamae* Daniel	*E. yokohamae* Daniel
E. tsinlingica Daniel キムジホソバ	*E. iwatensis* Okano イワテホソバ	*E. iwatensis* Okano イワテホソバ
E. japonica japonica Leech キマエホソバ	*E. ainonis* Matsumura アイノホソバ	—— ——
E. nankingica Daniel ヒメツマキホソバ	*E. japonica* Leech マエキホソバ	—— ニセキマエホソバ
E. minor Okano ニセキマエホソバ	*E. coreana* Leech マエキホソバ	—— ヒメツマキホソバ
E. degenerella Walker シロホソバ	—— ——	—— ——
E. cribrata Staudinger ヒメキホソバ	—— ——	—— ——

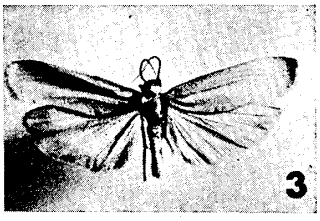
—— —— は学名・和名を正しく使っていることを示す．

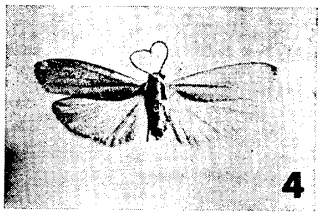
NII-Electronic Library Service

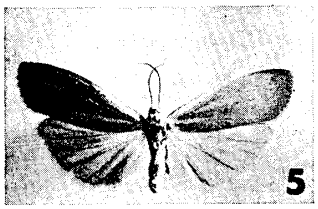
The Lepidopterological Society of Japan

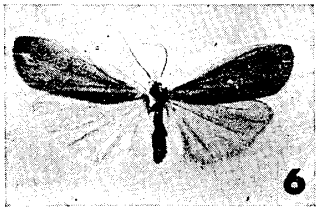

1

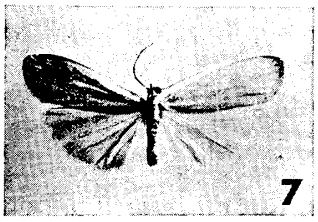

2

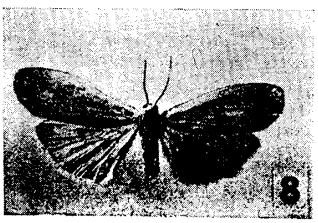

3

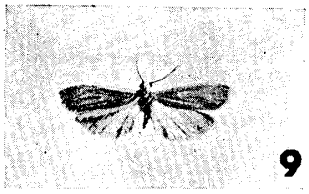

4

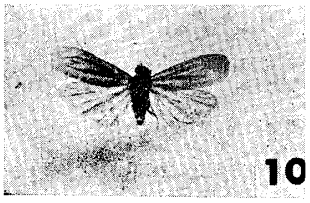

5

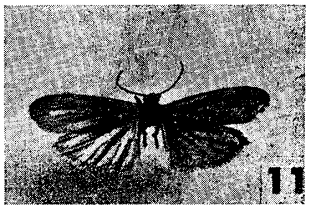

6

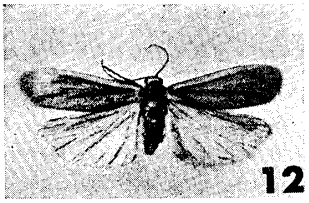

7

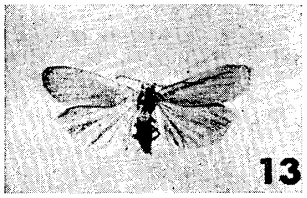

8

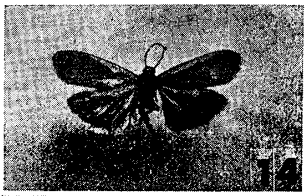

9

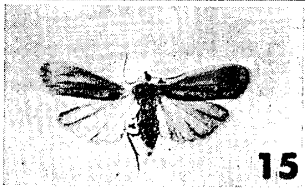

10

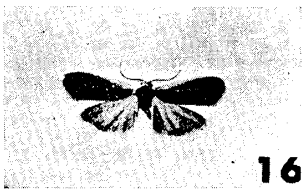

11

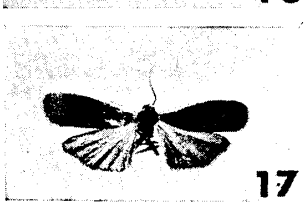

12

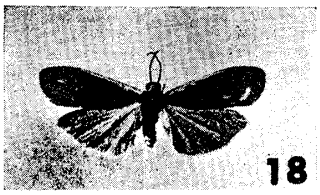

13

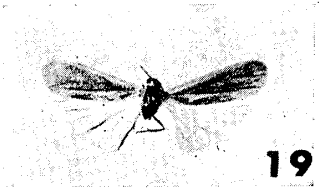

14


15

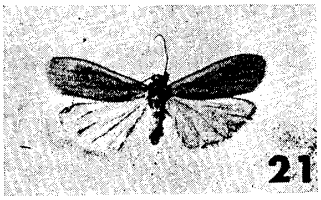

16

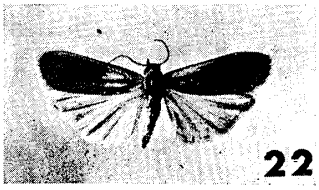

17

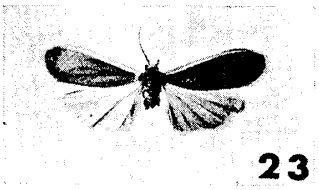

18

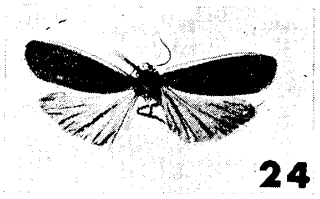

19

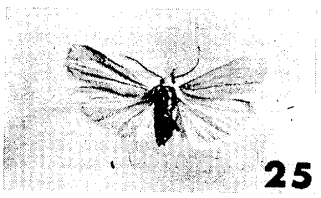
20

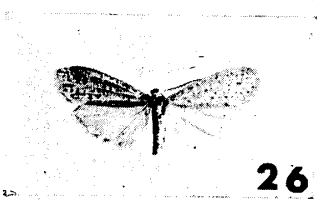

21


22


23

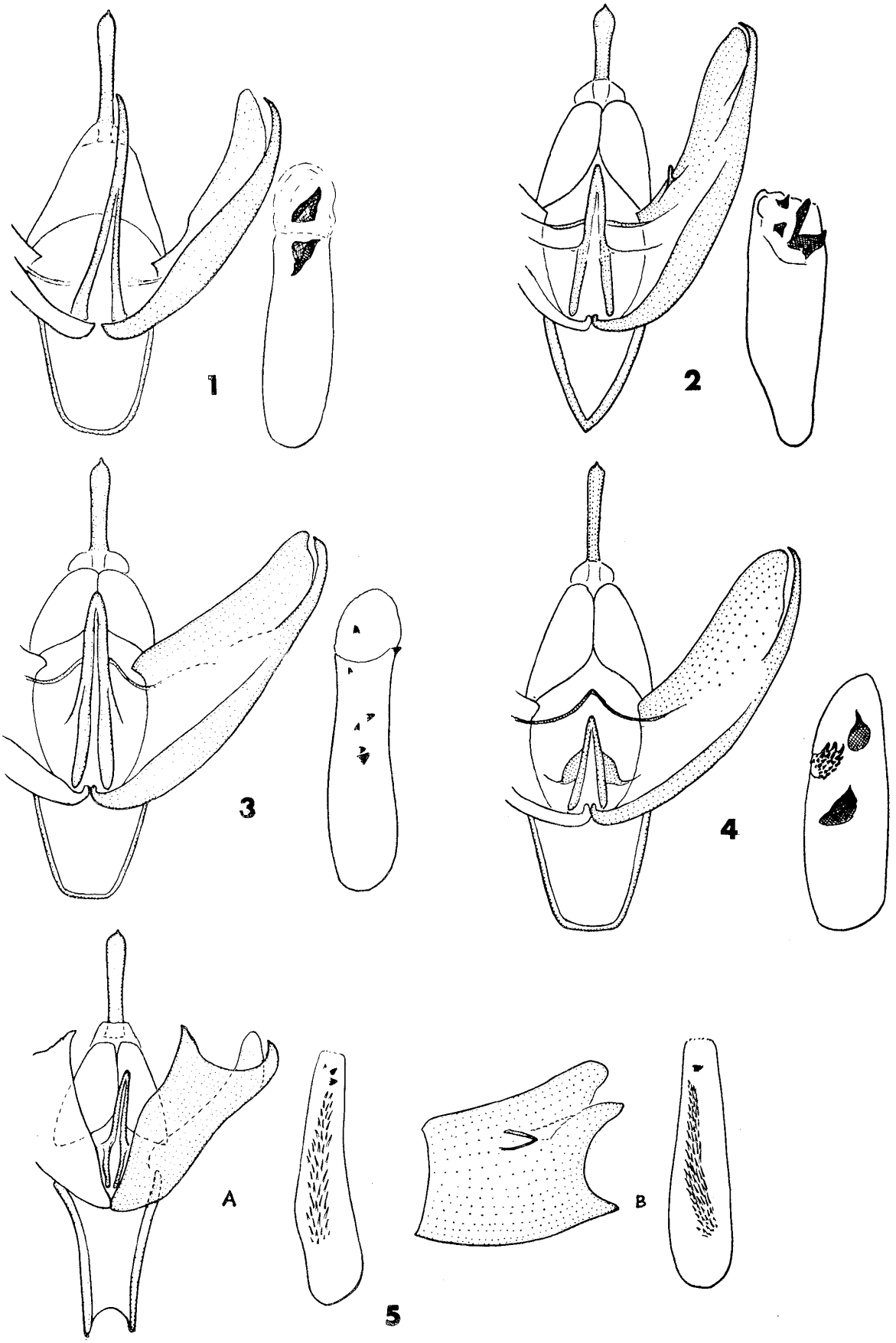

24


25


26

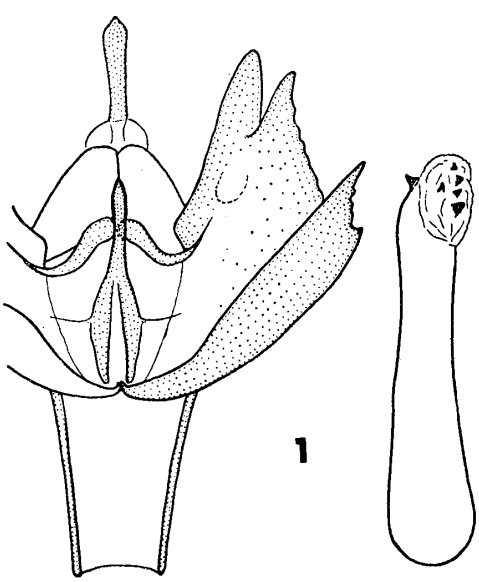
NII-Electronic Library Service

The Lepidopterological Society of Japan

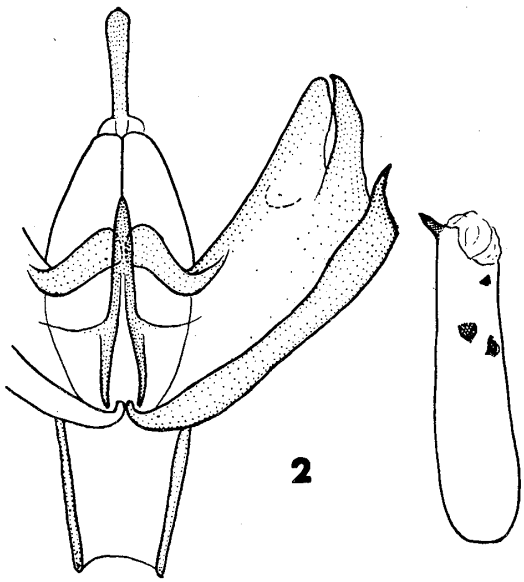


NII-Electronic Library Service

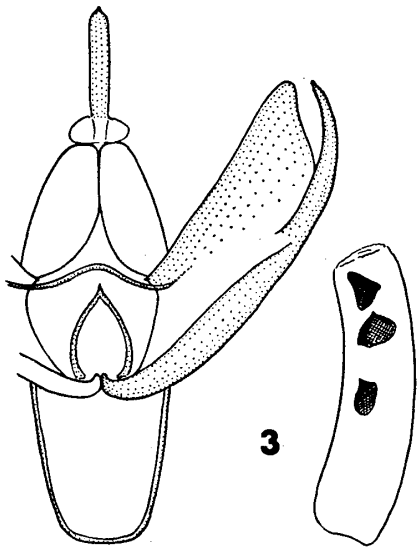
The Lepidopterological Society of Japan



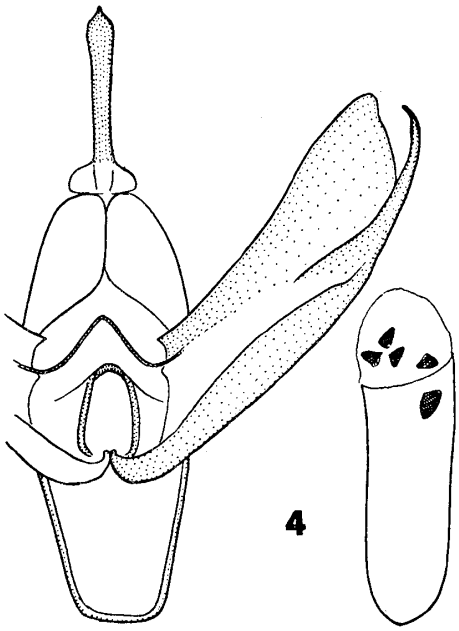
1



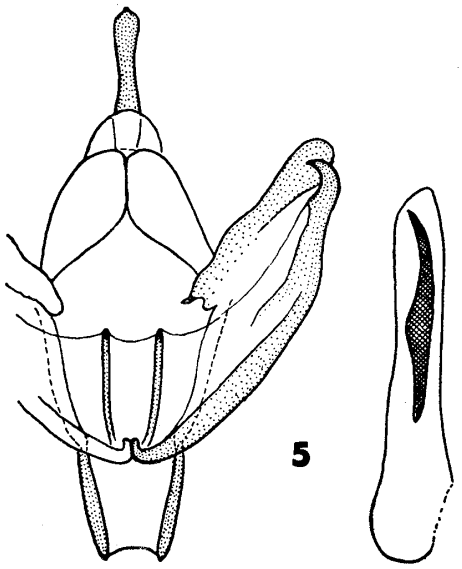
2



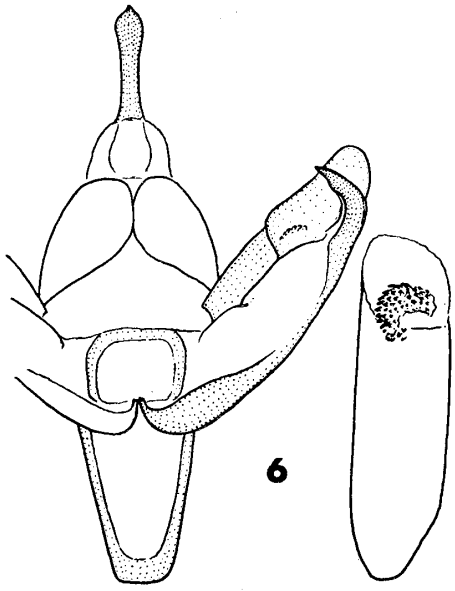
3



4



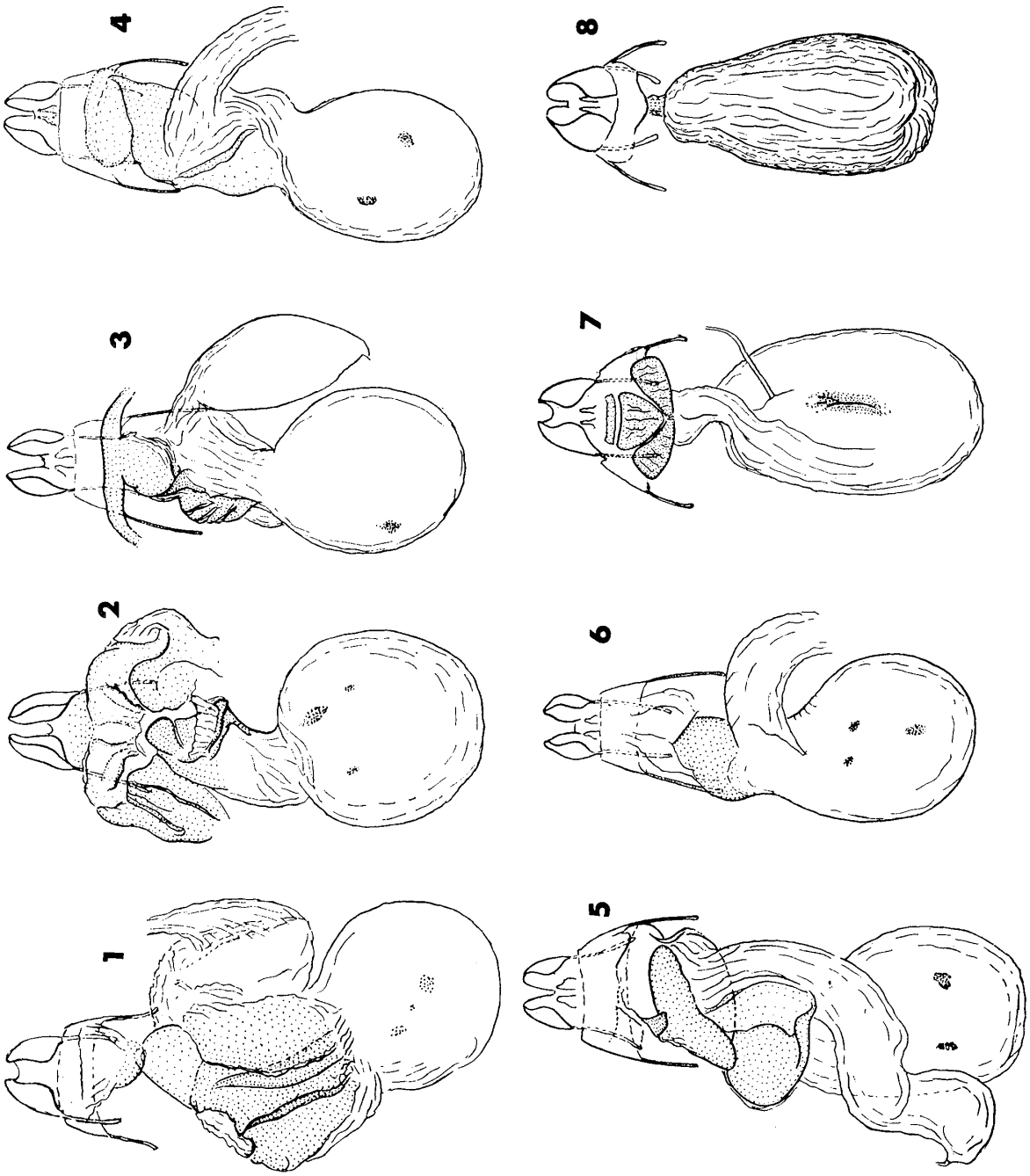
5



6

NII-Electronic Library Service

The Lepidopterological Society of Japan



NII-Electronic Library Service